Enrico Casella, PhD

COMPUTER SCIENCE · ANIMAL SCIENCE

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I am an inter-disciplinary computer scientist who focuses on applying machine learning and artificial intelligence to several scientific domains. My main focus is on precision livestock technology and the animal science domain.

Professional Experience

2024-	**Assistant Professor of Data Science for Animal Systems**, Penn State University - Dept. of Animal Science
2023-2024	**Post-Doctoral Research Associate**, University of Wisconsin-Madison - PI: Dr. Joao Dorea
2019-2023	**Ph.D Computer Science - Research Assistant**, University of Kentucky - PI: Dr. Simone Silvestri
2018-2019	**Ph.D Computer Science - Teaching Assistant**, University of Kentucky
2017-2017	**Visiting Research Scholar**, Missouri University of S&T - PIs: Dr. S. Silvestri & Dr. S. K. Das & Dr. M. Ortolani

Education

University of Kentucky · *Lexington, KY, USA*

PHD COMPUTER SCIENCE · *Fall 2018 - Present*

- 4.0 GPA
- Advisor: Dr. Simone Silvestri
- Graduation: May 2023

University of Palermo · *Palermo, Italy*

MS COMPUTER ENGINEERING · *2015 - 2018*

- 110/110 cum laude
- Master's thesis at Missouri University of Science & Technology

University of Palermo · *Palermo, Italy*

BS COMPUTER AND TELECOMMUNICATION ENGINEERING · *2012 - 2015*

- Computer Engineering Specialization

Publications

PEER-REVIEWED JOURNAL ARTICLES

10. **E. Casella**, M.C. Cantor, M. Woodrum, S. Silvestri, J. H. C. Costa "A Machine Learning and Optimization Framework for the Early Diagnosis of Bovine Respiratory Disease", in IEEE Access.

9. M. C. Cantor, **E. Casella**, S. Silvestri, D. L. Renaud, J. H. C. Costa, "Using Machine Learning and Behavioral Patterns Observed by Automated Feeders and Accelerometers for the Early Indication of Clinical Bovine Respiratory Disease Status in Preweaned Dairy Calves" in Frontiers in Animal Science, Vol. 3, 2022.

8. **E. Casella**, M. Ortolani, S. Silvestri, S. K. Das, "Hierarchical syntactic models for human activity recognition through mobility traces" in Springer Personal and Ubiquitous Computing, Vol. 24, Issue 4, pages 451-464, 2019.

7. **E. Casella**, A. R. Khamesi, S. Silvestri, "A framework for the recognition of horse gaits through wearable devices" in Elsevier Pervasive and Mobile Computing, Special Issue on Mobile and Social Sensing, Vol. 67, 2020.

CONFERENCE PROCEEDINGS

6. **E. Casella**, M. C. Cantor, S. Silvestri, D. L. Renaud, J. H. C. Costa, "Cost-aware Inference of Bovine Respiratory Disease in Calves using Precision Livestock Technology" in Proceedings of the IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS), 2022. *Acceptance rate: 30.95% (13/42 accepted papers)*

5. **E. Casella**, A. R. Khamesi, S. Silvestri, D. A. Baker, S. K. Das, "HVAC Power Conservation through Reverse Auctions and Machine Learning" in Proceedings of the IEEE International Conference on Pervasive Computing and Communications (PerCom), 2022. *Acceptance rate: 10.11% (18/178 accepted full papers)*

4. **E. Casella**, A. R. Khamesi, S. Silvestri, "Smartwatch Application for Horse Gaits Activity Recognition" in Proceedings of the IEEE International Conference on Smart Computing (SMARTCOMP), 2019

WiP Papers

3. **E. Casella**, E. Sudduth, S. Silvestri, "Dissecting the Problem of Individual Home Power Consumption Prediction using Machine Learning" in Proceedings of the IEEE International Conference on Smart Computing (SMARTCOMP), 2022

Abstracts

2. **Enrico Casella**, M. C. Cantor, J. H. C. Costa, M. Woodrum, S. Silvestri Using Machine Learning Techniques to Classify Respiratory Disease Persistency in Dairy Calves, American Dairy Science Association Annual Meeting (ADSA), 2023.

1. M. Cantor, **E. Casella**, S. Silvestri, D. Renaud, J. H. C. Costa, "Using machine learning and precision livestock farming technology for early indication of health status in preweaned dairy calves" in Proceedings of the European Conference on Precision Livestock Farming (ECPLF), 2022.

Submitted and In Preparation

E. Casella, S. Silvestri, D. A. Baker, S. K. Das, "A Human-Centered Power Conservation Framework based on Reverse Auctions and Machine Learning", submitted in ACM Transactions on Cyber-Physical Systems.

L. Monteiro, X. Tao, **E. Casella**, M.S. Cortasa, S. Silvestri, "Machine Learning Prediction of Soy Bean Yield Output based on Environmental Characteristics and Variety Types", to be submitted.

Awards, Fellowships, & Grants

2023	**CPS Rising Star**, University of Virginia
2023	**Outstanding Graduate Student Award**, Computer Science Department at U. of Kentucky
2023	**Best Paper Award**, Computer Science Department at University of Kentucky
2022	**Best Poster Award**, Computational Commonwealth Summit by University of Kentucky's Center for Computational Science (CCS)
2022	**Initiative Award**, Graduate Student Association of Computer Science at U. of Kentucky
2022	**Thaddeus B. Curtz Memorial Scholarship**, University of Kentucky
2020	**Best Poster Award**, Computational Commonwealth Summit by University of Kentucky's Center for Computational Science (CCS)

Teaching Experience

Fall 2022	**CS 686**, Guest Lectures on Linear Programming	*U. of Kentucky*
Spring 2019	**CS 371**, Guest Lectures on Machine Learning Principles	*U. of Kentucky*
Spring 2019	**CS 371**, Teaching Assistant	*U. of Kentucky*
Fall 2018	**CS 215**, Teaching Assistant	*U. of Kentucky*

Mentoring

2023-	**Enzo Machado Mangolini**, Undergraduate Student	*UW Madison*
2022-	**Alexander Barrera**, Ph.D. Student	*U. of Kentucky*
2022-	**Tao Xu**, Ph.D. Student	*U. of Kentucky*
2022-	**Butcher Jackson**, Undergraduate Student	*U. of Kentucky*
2021-2022	**Sudduth Eleanor**, Undergraduate Student	*U. of Kentucky*
2021	**Hoang Duong H.**, Undergraduate Student	*U. of Kentucky*

Outreach & Professional Development

Technical Program Committee Member

IEEE MASS Workshop on Distributed Systems for the Agriculture Revolution (DSys4AR 2023)
ACM 24th International Conference On Distributed Computing And Networking (ICDCN 2022, 2023)
IARIA 10th International Conference on Advanced Communications and Computation (INFOCOMP 2020)

Journal Peer Review

IEEE Transactions on Mobile Computing
IEEE Access
IEEE Internet of Things
IEEE Human-Machine Systems
Elsevier Pervasive and Mobile Computing
Elsevier Computers in Biology and Medicine
Elsevier Ad-hoc Networks
Elsevier Computer Networks
Elsevier Sustainable Energy, Grids and Networks
Springer Reliable Intelligent Environments
Journal of Aerospace Information Systems
MDPI Animals

Conference Proceedings Peer Review

IEEE International Conference on Distributed Computing Systems (ICDCS)
IEEE Global Communications Conference (GLOBECOM)
IEEE International Conference on Mobile Ad-Hoc and Smart Systems (MASS)
IEEE International Conference on Distributed Computing in Smart Systems and the Internet of Things (DCOSS)
IEEE International Conference on Sensing, Communication, and Networking (SECON)
IEEE International Conference on Communications (ICC)
IEEE International Conference on COMmunication Systems & NETworkS (COMSNETS)
IEEE International Conference on Smart Computing (SMARTCOMP)
IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (LCN)
IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob)
IEEE International Workshop on Smart Service Systems (SmartSys)
IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM)
IEEE/ACM International Symposium on Quality of Service (IWQoS)

Professional Memberships

Institute of Electrical and Electronics Engineers (IEEE)

Outreach

Nov 2022	**2022 ICNP**, Student Volunteer	*Lexington, KY*
2022-	**Graduate Student Association of Computer Science (GSACS)**, President	*U. of Kentucky*
2021-2022	**Graduate Student Congress**, Mental Health Committee Member	*U. of Kentucky*
2021-2022	**Graduate Student Association of Computer Science (GSACS)**, Representative	*U. of Kentucky*